

## ABSTRACT OF THE DISCLOSURE

In a production method of a semiconductor device, a catalyst element, e.g. Ni, is added to an amorphous silicon film, formed on a substrate with an insulating surface, for promoting crystallization of the amorphous silicon film. Thereafter, the amorphous silicon film is subjected to heat treatment to cause crystal growth therein. Next, the crystal growth is stopped in a state where minute amorphous regions (uncrystallized regions) remain in the film. Next, the silicon film is irradiated with strong light (laser light) so as to be further crystallized. As a result, a crystalline silicon film that has high quality and is excellent in uniformity is obtained.